



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,330	09/29/2005	Naoya Ogata	AKA-0285	1543
23599	7590	02/20/2008	EXAMINER	
MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201			KALAFUT, STEPHEN J	
			ART UNIT	PAPER NUMBER
			1795	
			MAIL DATE	DELIVERY MODE
			02/20/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/551,330	OGATA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Stephen J. Kalafut	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-10, 12 and 13 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-10, 12 and 13 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 29 Sept 2005.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_.

Claims 1-10, 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims are confusing because claim 1 recites that the composition is an “electrode”, but claim 13 recites that the composition is placed between two electrodes. If the function of the present composition is to conduct ions between two electrodes, then it would be an electrolyte, rather than an electrode itself. Claims 2-10, 12 and 13 depend from claim 1, and would thus likewise be indefinite. Claims 12 and 13 are additionally indefinite because there is no antecedent for “said charge transfer ion source” in claim 12.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono *et al.* (JP 10-83,821) in view of Watarai *et al.* (JP 2003-77,539), both cited by applicants.

Ono *et al.* discloses a polymer electrolyte is made by reacting an imidazolium cation, a type of quaternary ammonium cation, with a monomer with a polymerizable function, such as polyvinyl sulfonamide. The imidazolium cation forms a compound with a halide anion, of which fluoride would be an obvious variety. See the abstract, lines 3-7. The resulting composition may also include a lithium salt such as LiTFSI (formula 5 in paragraph 0035), which would provide lithium ion conductivity. Ono *et al.* do not disclose an electrochemically inert polymer

reinforcing material. Watarai *et al.* discloses a lithium ion cell that includes an electrolyte having a matrix polymer (12a), such as polyvinylidene fluoride (paragraph 0011), and a particulate polymer (12b) supported therein. Because of the mechanical strength provided by the matrix polymer (paragraph 0006), it would be obvious to use the matrix polymer of Watarai *et al.* to support the polymer electrolyte of Ono *et al.* Recitations of how the polymer was made, such as by heat or radiation, are treated under product-by-process practice, and do not *per se* convey patentable weight. See MPEP 2113 and the cases cited therein, along with *in re Fitzgerald*, 205 USPQ 512.

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono *et al.* in view of Watarai *et al.* as applied to claim 1 above, and further in view of Gan *et al.* (US 6,759,170).

These claims differ from the above combination by reciting certain salts as a component of the “electrode” composition. Gan *et al.* disclose a lithium ion cell, and teaches various lithium salts as being well known as useful for transporting alkali metal ions between two electrodes (column 6, lines 54-61). Because the cell of Watarai *et al.* is of the same lithium ion type as Gan *et al.*, and because Ono *et al.* disclose an embodiment containing lithium ions (paragraph 0036), it would be obvious to use the salts disclosed by Gan *et al.* in the electrolyte of Ono *et al.*, used with the matrix polymer of Watarai *et al.* Regarding claim 13, Watarai *et al.* disclose an anode (13) and a cathode (11) used with their electrolyte.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wixom *et al.* (US 6,878,475) disclose a proton exchange membrane that includes nitrogen-containing hetero rings attached to a carbon backbone. Ono *et al.* and Watarai *et al.* were cited in the IDS of 29 September 2005, but no copies have been received. They are thus cited on the enclosed PTO-892, along with Fujita *et al.* (JP 2003-22,823) and Yamaguchi *et al.* (WO 00/54351). These were both cited on the International Search Report with a "Y", but were not applied because they dealt with fuel cells, where lithium ion conductivity is not desired. These have also been cited by applicants, but the copies have not been received.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Kalafut whose telephone number is 571-272-1286. The examiner can normally be reached on Mon-Fri 8:00 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen J. Kalafut/  
Primary Examiner, Art Unit 1795